for the embodiments of the present invention process regimes. The capping layer may be deposited at a temperature from 100-450 °C.--

IN THE CLAIMS:

Please amend the following claims.

1. (Amended) A process for capping an extremely low dielectric constant ("ELK") film comprising:

forming an ELK film on a substrate; and

depositing an amorphous silicon carbide capping layer on said ELK film.

2. (Amended) The process of claim 1 further comprising forming a carbon-doped silicon oxide capping layer on the amorphous silicon carbide capping layer, wherein the carbon-doped oxide layer has a dielectric constant less than the dielectric constant of the amorphous silicon carbide capping layer.

3. (Amended) The process of claim 1 wherein said amorphous silicon carbide capping layer is hydrogenated, and has a dielectric constant less than approximately 4.5.

8. (Amended) The process of claim 1 wherein a combined dielectric constant for a stack comprising said ELK film and said silicon carbide capping layer is less than 3.0.

10. (Amended) The process of claim 1 wherein said ELK film has a dielectric constant of approximately 2.5 or less.

13. (Amended) The process of claim 12 wherein said silicon containing precursor comprises an organosilane compound.

22. (Amended) A process for capping an extremely low dielectric constant ("ELK") film using a silicon carbide material comprising:

forming an ELK film on a substrate; and

depositing a silicon carbide capping layer having a dielectric constant of approximately less than 5 on said ELK film, where said silicon-carbide layer is produced by a process providing a silicon containing precursor, a carbon containing precursor and process gases comprising oxygen, helium and nitrogen, and providing said silicon containing precursor and said carbon containing precursor at a rate approximately six times that of the oxygen and further comprising reacting said silicon and said carbon containing precursor in a chamber having a pressure in the range of about 1 to 15 Torr with an RF power source supplying a power at approximately 300-600 watts and a substrate surface temperature between approximately 100° and approximately 450° C and having a shower head to substrate spacing of approximately 200 to approximately 600 mils, and wherein said capping layer has an adhesion strength of at least about 35 MPa to said ELK film, and wherein the dielectric constant for a stack consisting of said ELK film and said silicon carbide layer is at most approximately 3.0.

25. (Amended) The stack of claim 24 wherein said amorphous silicon carbide layer is a hydrogenated amorphous silicon carbide layer that has substantially no oxygen.

34. (Amended) The stack of claim 23 wherein said amorphous silicon carbide layer comprises an etch selectivity ratio of between about 40 to 1 and about 1 to 1, with respect to the ELK layer.

37. (Amended) The stack of claim 23 wherein said carbon-doped oxide layer is produced by a process providing a silicon containing precursor, a carbon containing precursor and process gases comprising oxygen, helium and nitrogen, and providing said silicon containing precursor and said carbon containing precursor at rate approximately six times that of the oxygen and further comprising reacting said silicon and said carbon in a chamber having pressure in the range of about 1 to 15 Torr with an RF power source supplying a power at a rate of approximately 300-600 watts and a substrate surface temperature between approximately 100° and approximately 450° C and having a shower head to substrate spacing of approximately 200 to approximately 600 mils.

39. (New) A process for capping a low dielectric constant film, the method comprising:

forming a porous, low-dielectric constant film on a substrate; and

depositing a capping layer on the low-dielectric constant film, wherein the capping layer comprises a carbon-doped oxide or an amorphous silicon carbide film, and wherein the capping layer has a dielectric constant of about 5.0 or less.

40. (New) The process of claim 39 wherein the capping layer has a dielectric constant of about 4.5 or less.

41. (New) The process of claim 39 wherein the capping layer is in direct contact with the porous, low-dielectric constant film.

42. (New) The process of claim 39 wherein the porous, low-dielectric constant film has a dielectric constant less than about 2.5.

43. (New) The process of claim 39 wherein the porous, low dielectric constant film and the capping layer are in a stack of layers, and wherein the stack of layers has an effective dielectric constant less than about 3.0.